# Forty-Fifth Meeting

of the

# American Electrochemical Society

PHILADELPHIA, PA.

April 24, 25 and 26, 1924

## LOCAL COMMITTEES

### General Committee

A. E. Gibbs, *Chairman*

Richard P. Brown
Carl Hering
Frank Hodson
Harlan S. Miner
C. J. Russel
Pedro G. Salom
S. S. Sadtler
Walter T. Taggart

### Excursion Committee

Pedro G. Salom, *Chairman*

Harlan S. Miner
C. J. Russel

### Golf Committee

Frank Hodson, *Chairman*

Richard P. Brown
A. Weisenburg

### Local Press Publicity Committee

S. S. Sadtler

### Ladies Committee

Mrs. Frank Hodson

Mrs. Richard P. Brown
Mrs. S. S. Sadtler

# GENERAL INFORMATION

**HEADQUARTERS.** The **Bellevue-Stratford,** corner Broad and Walnut Streets, Philadelphia, will be the Headquarters. This hotel is but two blocks from the Pennsylvania R. R. Station, and four blocks from the Philadelphia and Reading Terminal. Members and guests who have not as yet made their hotel reservations are urged to do so at once. For the convenience of members the rates of other hotels, in the proximity of the headquarters, are listed on the last page of this booklet.

Technical sessions are scheduled to be held at the **Bellevue-Stratford** as follows:

Thursday (April 24) A.M.: Organic Electrochemistry.

Thursday noon: Round Table Discussion on "Refractories for Electric Furnaces."

Thursday, 7 P.M.: Informal Supper Parties.

Friday (April 25) A.M.: Electrodeposition Symposium. Electrolytic copper, silver, zinc, iron, et al.

Friday noon: Round Table Discussion on "Electrodeposition."

Saturday (April 26) A.M.: Electrodeposition Symposium continued.

**REGISTRATION.** Registration will commence at 6:00 P.M., Wednesday, April 23, at the Bellevue-Stratford and will continue there during the time of the meeting. Programs, preprints and badges may be obtained at the registrar's desk, where other information pertaining to the meeting will also be available.

Guests are cordially invited to attend this meeting of the Society. Upon being introduced, they may register and attend the various sessions and social functions. Persons whose election to membership is pending may receive and wear the membership badge upon paying the $5.00 entrance fee.

## INVITATION TO MEMBERS OF OTHER SOCIETIES

Members of the following technical societies are cordially invited to attend this meeting and to participate in the various activities: American Chemical Society, American Institute of Electrical Engineers, American Institute of Mining and Metallurgical Engineers, American Society of Civil Engineers, American Institute of Chemical Engineers, and the American Society for Testing Materials. Members of the Engineers' Club of Philadelphia, of the American Physical Society, and of the Franklin Institute will also be welcomed and are kindly requested to register at the Society's desk.

## VISITS TO INDUSTRIAL PLANTS AND BOAT RIDE AMONG SOCIAL ATTRACTIONS

On Thursday afternoon visits will be made to the following industrial plants:

Ajax Wyatt Co. (Two 40 kw. furnaces in operation.)
Disston Co.
Dodge Steel Castings Co.
Keasbey & Mattison Co.
Welsbach Co.
Brown Instrument Co.

Members who are interested in visiting one or more of these plants are requested to sign the "Excursion List," at the registrar's desk, immediately upon their arrival. This will

greatly assist the local committee in making the necessary arrangements for conducting the members through these plants. Further details regarding these trips will be furnished by the registrar.

On Thursday evening (8:00 P.M.), members and guests of the Society are invited to attend a lecture at the Franklin Institute on "Molecular and Cosmical Magnetism," by Dr. D. J. Barnett.

On Friday afternoon an interesting trip will be made by boat up and down the Delaware River. This will afford an excellent opportunity to see the new bridge across the Delaware, now under construction. The boat will dock at the Navy Yard, League Island, where an inspection trip will be made to the Aeroplane Factory. The boat will leave Foot of Chestnut Street promptly at 2:30 P.M. Members and guests who wish to make this excursion are requested to register for this trip at the Society's desk upon their arrival in Philadelphia.

In returning from the visit to the Aeroplane Factory, the boat will dock at Camden where members will board the train arriving at Morris-on-the-Delaware, N. J., about 6:15 P.M. The members of the party will then gather at Kugler's Old Mohican Club where an **Old Fashioned Planked Shad Dinner** will be served. Dr. H. S. Miner is Chairman of the Dinner Committee. Tickets for the dinner may be purchased from the registrar at $3.00 each.

Following the dinner at the Old Mohican Club, **Mr. John Mills**, Personnel Director of the Western Electric Co., and author of "Within the Atom," will address the members and guests on "The Atom," developing first the modern conception of the atom and then will divulge the two types of derangement

which occur in nature in the atomic structure, namely, nuclear derangements which are illustrated by radioactivity, and derangements of the planetary electrons which are illustrated by electrical phenomena and radiation. In connection with radiation the elementary ideas of the quantum theory are developed. The crucial experiments by which the physicist has arrived at these concepts of atomic structure will be illustrated by lantern slides and discussed in connection with either nuclear derangements or the planetary derangements which are responsible for the observed phenomena.

## TRIP TO EDGEWOOD ARSENAL

An opportunity will be afforded to members of the Society to visit Edgewood Arsenal on **Saturday**, April 26th. The Arsenal consists of eight main divisions: administrative, chemical, mechanical, medical, research, troops, plants and production, property, and chemical warfare school. Its operation on a peace-time basis, as well as the facilities that are available for war emergencies should be of interest to many Society members. Those members desiring to make the trip are advised to go via the Pennsylvania Railroad, leaving West Philadelphia at 12:13 P.M. Lunch may be obtained in dining car attached to this train. Special arrangements have been made to stop this train at Edgewood, arriving there about 2:00 P.M., in sufficient time for the demonstration by the Chemical Warfare Service.

Members of the Society who will take in the excursion to Edgewood Arsenal, and who expect to be back in New York City to attend the Testimonial Dinner in honor of Hon. Francis P. Garvan, will leave Edgewood Arsenal on the Pennsylvania Railroad through train, stopping at Edgewood Arsenal at 3:40

P.M. All members of the Society are cordially invited to attend the Testimonial Dinner, which will be held at the Waldorf-Astoria, New York City, at 8:30 P.M. Price per cover, $6.00. Make checks payable to A. V. H. Mory, 1 Madison Avenue, New York City.

## GOLF

On Thursday afternoon and Saturday morning the Society's golf enthusiasts are cordially invited to display their skill at the Merion Country Club or the Tredyffryn Club. Mr. Frank Hodson is Chairman of the Golf Committee and those wishing to play are requested to advise him or the registrar. All scores duly signed and witnessed should be turned over to Mr. Hodson.

## ENTERTAINMENT FOR LADIES

Thursday afternoon, April 24.—Sight-seeing. Details at Registrar's Desk.

Friday afternoon.—Trip up and down the Delaware River to see the new bridge, in course of construction, and to visit the Aeroplane Factory at the Navy Yard. Old Fashioned Planked Shad Dinner will be served at Kugler's Old Mohican Club, Morrison-the-Delaware, N. J., at 6:30 P.M.

Friday evening, 8:00 P.M.—Lecture at the Old Mohican Club on "The Atom," by Mr. John Mills, of the Western Electric Co.

## ROUND TABLE DISCUSSIONS
## "REFRATORIES FOR ELECTRIC FURNACES"

On Thursday, at luncheon,* Bellevue-Stratford, Dr. M. L. Hartmann, Director of the Research Lab., of the Carborundum Co., Niagara Falls, N. Y., will be the Chairman of a Round Table Discussion on "Refractories for Electric

* Tickets at $1.50 per cover may be purchased at the Registrar's desk.

Furnaces." It is the purpose of this Round Table to allow electric furnace operators to present difficulties they have experienced with refractories. Discussion will also be invited from electric furnace users as well as from refractory manufacturers. The discussion will be informal and will not be reported stenographically.

## "FUTURE PROGRESS IN ELECTRO-DEPOSITION"

At luncheon,* Friday noon, at the Bellevue-Stratford, Mr. S. Skowronski, Research Chemist of the Raritan Copper Works, Perth Amboy, N. J., will preside at a Round Table Meeting covering the field of electrodeposition and electroplating. The discussion will be informal and will cover the electro-refining of metals, the electro-reduction of metals, the electro-forming of metals, and the electroplating of metals. This will afford an excellent opportunity for the expression of unbiased opinions, as no stenographic report will be made of this Round Table Discussion.

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### Typewritten Discussion

Members wishing to present written discussion on any of the technical papers listed in this program are kindly requested to submit three copies of each to the American Electrochemical Society, Columbia University, New York City, not later than April 17.

**Note.**—Although most of the technical papers listed in this program have been definitely accepted for publication in the Society's Transactions, final action on a few of the papers is still pending at the time this program goes to press.

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* Tickets at $1.50 per cover may be purchased at the registrar's desk.

# NOTES

# PROGRAM

**WEDNESDAY, APRIL 23, 1924.**

**6:00 P.M.** Registration begins at Bellevue-Stratford.

**THURSDAY, APRIL 24, 1924.**

**9:30 A.M.** SYMPOSIUM at the Bellevue-Stratford.

"ORGANIC ELECTROCHEMISTRY."

Dr. C. J. Thatcher, Chairman.

Introductory Address to Symposium—Dr. C. J. Thatcher.

Kendall S. Tesh and Alex. Lowy: The Electrolytic Preparation of Salicylic Aldehyde from Salicylic Acid.

Alfred R. Ebberts and Alex. Lowy: The Electrolytic Reduction of $\beta$-Anthraquinone Sulfonic Acid.

Arthur K. Doolittle: The Electrolytic Preparation of Metanilic Acid and Its Possibilities.

Raymond F. Dunbrook and Alex. Lowy: The Electrolytic Oxidation of p-Nitrotoluene and p-Chlorotoluene to their Respective Acids.

Fr. Fichter: Electrochemical Oxidation of Aromatic Hydrocarbons.

Fr. Fichter: The Function of Peroxides and Peracids in the Electrochemical Oxidation of Organic Compounds.

C. Schall and H. Markgraf: Electrolytic Production of Cobalt and Nickel Triacetates from the Diacetates; the Electrolytic Production of Nickel Triacetates.

**12:30 P.M.** Adjournment.

# NOTES

**12:45 P.M.** ROUND TABLE DISCUSSION at luncheon*, Bellevue-Stratford.

Subject: "Refractories for Electric Furnaces."

**2:00 P.M.** Visit to Industrial Plants (See list p. 2) or Golf at Merion Country Club or Tredyffryn Club (see p. 5).

**6:30 P.M.** Meeting of the Board of Directors at Dinner, Bellevue-Stratford.

**7:00 P.M.** Informal supper and theatre parties.

**FRIDAY, APRIL 25, 1924.**

**9:00 A.M.** ANNUAL BUSINESS MEETING at Bellevue-Stratford.

Election of Officers of the Electrodeposition and Electrothermic Divisions. The polls will be open from 9:00 to 12:00. Ballots will be available at the Registrar's desk.

Address of the Retiring President, Mr. A. T. Hinckley.

**9:30 A.M.** SYMPOSIUM on "Recent Progress in ELECTRODEPOSITION."

Mr. S. Skowronski, Chairman.

Wm. Blum: Recent Progress in Electroplating and Electroforming.

C. T. Thomas and W. Blum: Nickel Anodes.

L. D. Hammond: Conductivity of Nickel Depositing Solutions.

V. Kohlschütter: The Relation Between Polarization and Structure in the Electrodeposition of Metals.

G. H. Montillon and N. S. Cassel: Acidity of Cobalt and Nickel Plating

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# NOTES

Baths. The Use of the Oxygen Electrode.

Lincoln T. Work and Prescott Van Horn: The Analysis of Electroplating Solutions.

C. J. Wernlund: Recent Improvements in the Art of Electrogalvanizing.

F. F. Farnsworth and C. D. Hocker: An Intermittent Immersion Test as an Aid in Evaluating Zinc Coats Plated on Iron and Steel.

F. C. Mathers and R. L. Hardy: Comparison of Protection of Iron by Zinc and by Zinc Copper Alloy and the Electrodeposition of such Deposits.

Cleveland F. Nixon: A Further Study of the Dezincification of Brass.

Alfred L. Ferguson and Gerrit Van Zyl: The Measurement of Decomposition Potentials.

E. M. Baker and Richard Schneidewind: Metal Cleansing with Alkaline Metal Cleaning Solutions.

**12:30 P.M.** ROUND TABLE DISCUSSION at Luncheon,* Bellevue-Stratford. Subject: "Future Progress in Electrodeposition."

**2:30 P.M., Sharp.** Boat leaves foot of Chestnut Street for trip up the Delaware and visit to Aeroplane Factory.

**6:30 P.M.** Old Fashioned Plank Shad Dinner at Kugler's Old Mohican Club at Morris-on-the-Delaware, N. J.

**8:00 P.M.** Illustrated Lecture by Mr. John Mills at Old Mohican Club.

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# NOTES

## SATURDAY, APRIL 26, 1924.

**9:00 A.M.** Annual Business Meeting—Electrodeposition Division.

SYMPOSIUM (Continued).

"Recent Progress in Electrodeposition."

Mr. S. Skowronski, Chairman.

Introductory: Review of Progress in Electrolytic Refining of Metals, by Mr. S. Skowronski.

H. Y. Eagle: Electrodeposition of Copper by the Union Miniere du Haut Katanga.

C. W. Eichrodt: The Electrolytic Tank House, Chile Exploration Co., Chuquicamata, Chile.

G. H. Clevenger: Electrolytic Silver Refining at Pachuca.

Edward F. Kern and Edward A. Capillion: Addition-Agents in Tin Refining Electrolytes.

Charles L. Mantell: Electrolytic Tin.

J. R. Stack: Electrolytic Refining of Tin.

Donald Belcher: Progress in Electrolytic Iron.

B. S. Hopkins and A. W. Meyer: The Electrolytic Production of Beryllium.

E. A. Engle and B. S. Hopkins: The Metallurgy and Alloys of Beryllium.

F. C. Mathers and H. L. Turner: Electrodeposition of Tellurium.

C. A. Mann and H. O. Halvorsen: An Attempt to Electroplate Tungsten on Iron.

**1:30 P.M.** Adjournment.

# NOTES

## HOTEL RATES

| | Single Room | | Double Room |
|---|---|---|---|
| | Without Bath | With Bath | With Bath |
| BELLEVUE-STRATFORD (Headquarters) (Broad and Walnut Streets) | $4-$6 | $5-$9 | $9, up |
| ADELPHIA (Two blocks from Bellevue-Stratford) | ..... | $4, up | $8, up |
| SYLVANIA (About one block from Bellevue-Stratford) | ..... | $4, up | $6, up |

## OFFICERS OF THE SOCIETY

**President**

A. T. Hinckley, Niagara Falls, N. Y.

**Past-President**

C. G. Schluederberg

**Vice-Presidents**

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A. H. Hooker
W. S. Landis
Terms expire 1924

Lawrence Addicks
G. K. Elliott
Henry Howard
Terms expire 1925

**Managers**

Carl Hering
J. V. N. Dorr
F. A. J. FitzGerald
Terms expire 1924

E. F. Cone
W. M. Corse
Wm. Blum
Terms expire 1925

F. M. Beckett
C. B. Gibson
R. A. Witherspoon
Terms expire 1926

**Treasurer**

F. A. Lidbury
Term expires 1924

**Secretary**

Colin G. Fink, Columbia University, New York City

## LOCAL SECTIONS OF THE SOCIETY

*Philadelphia Section*

Carl Hering, Chairman, Philadelphia, Pa.
S. S. Sadtler, Secretary, Philadelphia, Pa.

*New York Section*

Paul D. Merica, Chairman, Bayonne, N. J.
P. D. V. Manning, Secretary, New York City

*Pittsburgh Section*

C. B. Gibson, Chairman, Pittsburgh, Pa.
S. L. Goodale, Secretary-Treasurer, Pittsburgh, Pa.

*Niagara Falls Section*

Wm. G. Harvey, Chairman, Niagara Falls, N. Y.
L. C. Judson, Secy.-Treas., Niagara Falls, N. Y.

*San Francisco Section*

J. Woods Beckman, Chairman
Rudolf Gahl, Secretary

Entrance Fee, $5.00. (Students are exempt from paying entrance fee.) Yearly Dues, $8.00. Application blanks and any other information may be obtained from the Secretary. Each member receives the Publications of the Society, in pamphlet form, containing the papers and discussions of the General Meetings of the Society. Members can obtain the bound volumes of Transactions for an extra payment of $5.00 per year.